

Dr. Burton has collected ten different accessions of the eight chromosome Cynodon transvaalensis. Most of these have been in the bermudagrass germ plasm nursery and survived many winters at Tifton. One of them came from Arizona. These varieties have been increased and placed at Rutgers University and Michigan State University. If one of them proves to be winter hardy, it will be crossed with the hardy Berlin bermuda selections and the bermudagrass breeding program will be on its way to realizing its latest objective.

R-70606 MISSISSIPPI STATE UNIVERSITY - Dr. Jeffrey V. Krans, Project Leader

Funds Granted \$2500      In vitro selection of heat tolerant creeping bentgrass.

Since the initiation of this research in 1978, progress has been made toward the recovery of improved heat tolerance in creeping bentgrass. Previous research has led to the elucidation of media and environmental conditions for manipulation of creeping bentgrass in tissue culture, development of a mutant cell selection scheme which isolates and allows recovery of heat tolerant cell lines and collection of 20 variant plants of creeping bentgrass with improved heat tolerance.

Research over the past six months has produced and evaluated 20 heat tolerant variants recovered via tissue culture techniques. Currently, 5 to 10 plants per month are being isolated and transferred to the field for turf quality evaluation and persistence. These plants show little difference in appearance to seed-propogated Penncross. Several heat tolerant selections of creeping bentgrass which were produced in the fall of 1982 survived the summer of 1983 in good condition without fungicide treatments. These, plus future selections, should provide a sufficient number from which to evaluate and choose improved heat tolerant variants. The final number of selected plants for field observation will be 70 to 80. By March, 1984 this number should be reached. These clones are planted in 2' x 2' plots on a sand-peat soil mix. Plots are mowed at a quarter-inch without fungicide treatments and compared to other commercial creeping bentgrasses for persistence.

In 1984, the work will center on field evaluation and the identification of the most persistent heat tolerant and desirable types of bentgrass.

R-70607 PENNSYLVANIA STATE UNIVERSITY - Dr. Joseph M. Duich, Project Leader

Funds Granted \$4000      Bentgrass breeding for golf courses.

All planned phases of the Colonial bentgrass project as outlined in the 1982 report were continued this year. A portion of these phases are thesis objectives for Mr. Eric K. Nelson, Master of Science candidate. During the past year, over 29,900 plants were started and screened in the greenhouse.

In the Colonial bentgrass project, the following results were obtained:

Chromosome Counts. Considerable effort was devoted to chromosome counts of 102 experimental parents. Five parents were found to deviate from the major anticipated number of 42.